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THE AMERICAN BEE JOURNAL

OLDEST BEE-PAPER IN AMERICA

GEORGE W. YORK, Editor. | DEVOTED EXCLUSIVELY—TO BEE-CULTURE. | Weekly, $1.00 a Year. Sample Free.

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"**Loveliest** of lovely things are they,
On earth that soonest pass away.
The rose that lives its little hour
Is prized beyond the sculptured flower."

Gathering Pollen.—Mrs. Jennie Atchley, of Greenville, Hunt Co., Tex., wrote us thus on Feb. 1st:

Bees began to gather the first natural pollen yesterday, and they just rolled it in this morning.

Here in Chicago, this morning (Feb. 4th) it is 10° below zero. Quite a variety of weather we have in these United States!

A Bad Mess.—When papers other than bee-papers attempt to say anything about bees they generally make a mess of it. A pseudo-religious paper, attempting a comparison, says: "The fact that the two larvæ, the drone and worker-bee, placed together in the queen-cell, will so blend as to develop an impregnated queen-bee," etc. There's advanced science for you! And the religion of the paper is a good deal worse than its bee-lore.

The Bee-Keepers' Union.—We have received from the General Manager of the National Bee-Keepers' Union, the following

OFFICIAL STATEMENT.

CHICAGO, Ills., Feb. 3, 1893.

To the Members of the National Bee-Keepers' Union:

I hereby submit the following statement of Votes received up the time of closing the polls, on Feb. 1, 1893: There were 348 votes cast.

For President—Hon. R. L. Taylor, 141; James Heddon, 136; scattering, 50; blank, 21.

For Vice-Presidents—C. C. Miller, 272; G. M. Doolittle, 270; A. I. Root, 265; A. J. Cook, 242; G. W. Demaree, 228; scattering, 248.

For General Manager, Secretary and Treasurer—Thomas G. Newman, 321; scattering, 3; blank, 24.

For Amended Constitution — 289; against, 28; blank, 31.

For Salary of Manager—20 per cent., 342; scattering, 6. Back salary voted, the years being added together, amount to 566. This, divided by the number of votes, lacks a little of being twice—carrying for one year, and leaving votes for 218 over. It will therefore commence with Jan. 1, 1892.

THOMAS G. NEWMAN,
General Manager.

In Queen-Breeding, it is wisely said, we should aim to rear prolific queens. This, indeed, is of prime importance. If we would have strong colonies, we must have queens that will commence to lay early, continue to lay abundantly, and keep on in the way of well doing until in the autumn.

Glucosing Dark Honeys.—It seems that this latter part of the marvellous nineteenth century is to be made still more marvellous by way of great and consternating surprises in the field of honey-production.

Not content with the death-threatening invention of the Hasty sugar-honey plan, James Heddon—once the proud leader in the production of honest honey—now steps almost to the low level of honey adulterators, by *defending* the practice of mixing glucose with dark honeys in order to effect its sale! This indeed would be hard to believe, were it not for the published report of his unfortunate utterances at the late meeting of the Michigan State Bee-Keepers' Association, which are found in the BEE JOURNAL for Jan. 5th.

If there is one thing this editor regrets since taking hold of the helm of the old AMERICAN BEE JOURNAL, it is that he was so almost criminally careless as to publish the parts of that Michigan convention report referring to the "Production of Sugar-Honey" and "Adulteration of Honey." We trust that we may be forgiven for having published it, and we certainly shall take better heed in the future, that no more such damaging stuff shall find a place in these columns. We are perfectly willing to let sensational publishers ride their hobbies, but the "old reifable" will hereafter *try* to avoid the quick-sand route.

Gleanings in Bee-Culture for Jan. 15th has such a good editorial on this very subject of glucosing dark honeys, that we feel we cannot do better, if as well, than to republish it entire. Here it is:

By the report of the proceedings of the Michigan State Bee-Keepers' Association, Mr. Heddon offers quite a lengthy argument in defense of adulterating, saying that it helps the sale of the poor dark honeys, because they will stand a large quantity of glucose. He says truthfully, that "there is no trouble about enforcing the law against murder, because people dislike to be murdered;" but when he says that enforcing laws against adulteration is impracticable because the public care very little about the matter, he is surely mistaken. The public does care.

Again, he says broadly, "I think the adulteration of honey has never injured bee-keeping; that it has, rather, been a benefit." And, again, quoting, "If we are going to fight adulteration, let us decide *why* we fight it. If it does not injure us, then why fight it?" And, once more, "All this talk about adulteration is the height of folly." We regret exceedingly that any one in our ranks should take such grounds as these; and we are sorry that even Prof. Cook should go so far as to say that, *if* the addition of glucose "to some grades of honey really improves them and aids in their sale, I have said my last word against adulteration."

Replying to Mr. Heddon, we will say that we know positively that the adulteration of honey by glucose has injured the bee-keeping interests, else why is it, in this year of great scarcity of honey, the extracted article fails to go up in price? In fact, it rules just about the same as it does in years of plenty. There was a time, and not more than three or four years ago, when very little honey was adulterated; but now things are changed; and if the continual *harping* on the subject is bad, that *silence* which lets the evil go on unrestrained and unchecked is *tenfold* worse. If circumstances were only such that we dared reveal some things that we know—well, we wont make any threats.

Referring to the quotation fron Prof. Cook, does he not see what a fearful flood of fraud and adulteration the admission of his argument would bring upon the country? Does he suppose for a moment that adulterators are going to stop at dark grades of honey and glucose in order to give the dear people something better than real floral honey? A little stream of water over the edge of Conemaugh dam "improved," perhaps, the water below; but it did more than that; it let loose death and destruction in its wake.

Now, it is possible that neither of the gentlemen above named have been correctly reported; but as Mr. Hutchinson acted as reporter, and is unusually careful and accurate, we presume the quotations are not far from correct. To have such "heresies" advanced by the president of the Union, now on the very eve of starting a well-organized effort to suppress adulteration of honey, is too bad. If bee-keepers should *not* be unanimous in this fight, if some of them should propose sugar comb honey, and others coun-

tenance adding glucose to dark honeys, where would we be coming to? Verily, the foundations of the bee-keeping industry would be threatened. Such a state of affairs must not come, and will not, because we believe that neither Mr. Heddon nor Prof. Cook would be willing to hazard the industry, or even run the risk of doing so. Surely Prof. Cook and Mr. Heddon will reconsider.

The suggestion and attempted defense of sugar-honey production was bad enough, but this championing of the criminal work of adulteration is *infinitely worse!* Indeed may it be asked, "Where are we at?" If such things continue, reputable bee-keeping will be *at* the door of Destruction. Such wild assertions as are enclosed with quotation marks in the foregoing paragraphs from *Gleanings*, are the rankest kind of heresies, and that such should be advanced by those prominent in the councils of bee-keepers themselves, is the most stupendous outrage of this apiarian age.

If there are any persons on the fair face of this earth to-day, who should make the most humble apologies, and earnestly beg the pardon and forgiveness of honest honey-producers all over the world, it is those who have so unwisely, so unfortunately—yes, so disastrously *defended* the adulteration of honey.

The question is, Will they be manly enough to make the *amende honorable?*

Bee-Keepers—To Work!—Mr. Jas. A. Stone, Secretary of the Illinois State Bee-Keepers' Association, wrote us thus on Jan. 25, 1893:

The Illinois State Bee-Keepers' Association Legislative Committee have introduced (in connection with the State Horticultural and State Dairymen's Association) a Bill in the Senate, and also in the House of the 38th General Assembly, for an appropriation to enable them to make a competitive exhibit at the World's Columbian Exposition.

This week there will be presented by the Legislative Committee (Hon. J. M. Hambaugh, S. N. Black, and J. A. Stone) of the Illinois Bee-Keepers' Association, Bills to prevent the spraying of fruit trees, etc., while in bloom; for an appropriation to publish a report; and one to compel the adulterators of honey to label their manufactured articles with the true name of their components (whether sugar, glucose, or other sweets not gathered from the flowers), with the names of manufacturers.

Let every man or woman interested in the keeping of bees, who can influence their representatives to favor these "Bills," work upon them by letting them know of the importance of the industry of bee-keeping in this broad State of *ours;* and that, no matter how much our interest is extended, it does not take the acreage from some other product, as would that of corn, wheat or oats, etc., wherein the increase of one results in the diminishing of the others'; but on the contrary, the increase of bees assists the horticulturist and farmer, in causing their products of fruits and seeds to be increased.

We wish to say further to bee-keepers, that nothing helps more before the Legislature than a large list of members to the State Bee-Keepers' Association.

JAS. A. STONE, *Sec.*

Bradfordton, Ills.

These are indeed important matters, and we trust that every bee-keeper in the State of Illinois will at once comply with the urgent request of Secretary Stone. He and the other members of the bee-committee are doing their utmost to aid the pursuit of bee-keeping, and they should have the hearty support of every one at all interested in the industry. Let all encourage them in their good work by helping them to be successful in their efforts.

Literary Chicago.—An article that will be read with great interest in every literary center in the East, and in every refined circle in the East and West, is William Morton Payne's article, "Literary Chicago," which opens the *New England Magazine* for February. The article is well illustrated, and contains portraits of Francis F. Browne, Dr. Paul Carus, Gen. Alexander C. McClurg, Horatio N. Powers, Benjamin F. Taylor, Eugene Field, Harriet Monroe, Blanche Fearing, George P. Upton, Dr. J. W. Foster, Elwyn A. Barron, Joseph Kirkland, Dr. William F. Poole, and George Howland.

Something Very Funny.—The AMERICAN BEE JOURNAL does not claim to be a comic paper, but here is something so very funny, taken from the *American Farmer*, and signed "J. W. Tefft," that we cannot forbear giving it to our readers:

Bee-keeping knowledge must be gained by ourselves. He who tries to solve bee-problems through the bee-trade journals will find that it takes a little longer than a lifetime. There are eight bee-papers published, and all of them are filled with literature upon drone-traps, bee-escapes, Hoffman frames, clipped queens, and a host of worthless things had on sale which the bee-keeper can have as a premium if he will only subscribe for their paper.

Isn't it just too funny for anything that bee-papers are filled with things that bee-keepers write about and really want to know all about? And isn't it a side-splitting joke that bee-keepers will continue to subscribe for such worthless things, from which they can learn nothing? Bro. T. will have to try again, we think.

Changing the Air in Cellars—In a recent number, Mr. S. Plummer asked the question whether in a wet and moldy cellar it would do any good to "place a fan wheel in one side of the cellar, and run by a wind-mill so as to put the air in motion around the cellar." The question was understood to refer to forcing in fresh air by means of a fan wheel (a method used for ventilating large buildings), and was answered accordingly. That was not intended, however, and now Mr. Plummer asks:

What will be the effect of a moderate circulation of the dead air in a cellar, on its temperature? What difference will there be in the density of the same?

It is not likely that merely keeping in motion the air in a cellar would give any satisfactory result. It will hardly make any noticeable difference either in the temperature or the density. You can easily try the experiment by putting a thermometer in a cold room, fanning it vigorously for 15 minutes or longer, then letting it stand the same length of time without fanning, then fanning again, and so on. If, during the intervals when the air is stirred by the fan, the thermometer shows no higher standing than when the air is at rest, it will be hardly worth while to stir the air in the cellar. To make it a more satisfactory trial, you might stir the air in the room by means of a closet-door swung back and forth.

On the whole, you will probably come to the conclusion that it will be better to change the air in the cellar by introducing fresh air slowly, warming it in some way, if that should be necessary.

Honey Caramels.—Chas. F. Muth & Son, of Cincinnati, Ohio, have kindly sent us a sample box of their delicious "honey caramels." We have eaten caramels before, but none like those made by Friends Muth & Son. Theirs are simply superb, and there should be a great demand for them.

We cannot understand why not more confections are gotten up with honey in them. Here is a remunerative field for some genius, who would also win much honor by helping to replace tasteless adulterations with a pure and health-giving sweet. Chas. F. Muth & Son are leading the way.

An Attractive Calendar is the one sent out by that enterprising bee-supply dealing firm—The W. T. Falconer Mfg. Co., of Jamestown, N. Y. We have one hung up in our home, and our very much "better half" is delighted with it. See their advertisement on the last page.

The Inter-Mountain—a paper published at Salt Lake City, Utah, by Mr. John C. Swaner—is discontinued. We regret to learn this, and hope Mr. S. is none the poorer for having made the attempt at publishing a paper.

MR. JAMES A. GREEN.

The subject of this sketch is one of the younger bee-keepers of to-day, though he is becoming quite well known by his clear, practical writings, and uncommonly common-sense views of api-

JAMES A. GREEN.

arian matters. He was born at Dayton, Ills., on Oct. 20, 1861. Except for a few months spent at school, he has always lived, until very recently, in the house in which he was born.

His father was a manufacturer of woolen goods, and a large part of his son's early life was spent in the woolen mill. A store was also kept where groceries and the products of the woolen mill were sold, and he presided over the counters of this for several years. As his labor was needed in these directions, his schooling, after the age of 14, was confined mostly to the winter months. Besides the common school, two terms were spent at a seminary in Aurora, Ill., and six at a High School in Ottawa, from which he graduated in 1884, at the age of 22.

Feeling the need of a better training, this education has been supplemented by considerable reading and private study. In 1891, he received his diploma for the course of reading laid down by the Chautaqua Literary and Scientific Circle, and he expects to be a student all his life.

In 1876, the woolen business having proved unprofitable, was abandoned, and his father went to Colorado for a time. He had for many years kept a few colonies of bees. In his absence the care of these fell upon James. In this he had the invaluable assistance and encouragement of his mother, to whom is probably due his choice of bee-keeping as a business.

The bees were in box-hives, and had been managed after old methods, receiving but little care. His mother thought there must be better methods of management, and attempted to find some literature on the subject. It seems very strange now to consider how hard a time she had to find anything that related to bees. No one seemed to know where anything of the kind was to be found.

At last Harbison's work, published some years ago, was procured and carefully studied. Though there was much valuable information in it, that part of it devoted to hives only led him astray. Finally a copy of the AMERICAN BEE JOURNAL was procured by Mr. G. through a newsdealer. He has this yet, the first copy of a bee-paper he ever saw, and he would not part with it for a great deal. Through its pages other periodicals and books were learned of and secured.

About the same time he learned that a farmer not far away had procured

some modern hives and appliances, and he lost no time in visiting him and securing a part of his stock. This farmer was the veriest tyro in bee-keeping, and his newly-found enthusiasm did not last more than a year or two, but what Mr. G. learned from him was indeed a revelation.

Thereafter Mr. Green was a bee-keeper, and with the exception of one winter spent in teaching school, and another as a book agent, bee-keeping has been his sole occupation ever since, except that for a year or two he has helped out the poor seasons by selling a few bicycles. The number of colonies kept has ranged from 50 to 400. At present he has only about 225. Bee-keeping has always paid him satisfactorily until the past five seasons, but he has not extended it as he would have liked, as the failure of his father in business placed such a heavy burden of debt on him that capital has always been lacking.

For several years he was Superintendent of the Sunday-school at Dayton, and also filled the office of Justice of the Peace.

The neighboring city of Ottawa had always furnished more congenial society than the little manufacturing village, and in the fall of 1892 he removed to Ottawa, where he will probably make his home in the future. He has been for some years a member of the Congregational Church where he now lives.

He started in his political life as a Democrat, but soon espoused the principles of the Prohibition party, in which he has been a candidate, and done some most excellent work.

Mr. Green is not married, and says he does not expect to be until fortune has smiled upon him a little more kindly.

Please Send Us the Names of your neighbors who keep bees, and we will send them sample copies of the BEE JOURNAL. Then please call upon them and get them to subscribe with you, and secure some of the premiums we offer.

CONDUCTED BY

Mrs. Jennie Atchley,

GREENVILLE, TEXAS.

Some Pioneer Bee-Keepers of Texas.

I wish to make some extracts from a private letter written by Dr. W. R. Howard, of Fort Worth, Texas, to W. R. Graham, of this place, regarding the pioneer bee-keepers of Texas, and those that founded the Texas State Bee-Keepers' Association, 16 years ago; and I wish to call attention to the outgrowth of these bee-masters. With the Doctor's permission I now make the extracts as mentioned:

"It affords me much pleasure to see the result of our work of many years ago. It was back in the 70's when we organized the Texas State Bee-Keepers' Association, which, through its annual conventions, stirred Texas from the panhandle country of the north to the coast countries of the south, and from Texarkana on the east to El Paso on the west; and awakened an interest in bee-keeping in every county in the State; and, as a result, developed some as fine bee and honey producing localities as are found in the United States, as well as bringing together 'kindred spirits,' developing filial affection and friendship, known and felt in no other pursuit.

"Many and happy have been the hours we have spent together in company with such men as Judge Andrews (rest his soul)—a man whom to know was to love, whose opinions were decisive, and whose experience in scientific as well as practical bee-keeping, has established facts which had never been discovered or mentioned, before his practical hand and deep theories brought them to light. But, alas, he tottered and fell.

"Then we have our Dr. W. K. Marshall, whom it is a pleasure to please, and who appreciates a friend so much, that it is felt with joy. If he ever sees a fault he never discloses it.

"Then, to be brief, we will mention a few more of the pioneers: F. F. Collins, Dr. B. F. Carroll, and many more whom it was a pleasure to meet and know. And last, but not least, W. R. Graham, the present President of the Association, and to whom we now owe the present existence of the Association, while some of us have strayed into other branches of business more profitable, as we thought, but of less pleasure and contentment, but our W. R. Graham has held firmly and unflinchingly to the old mast-pole, and stands to-day like a peer, and at the head, as one of the foremost bee-keepers of the South. He is always pleasant, meet him when you will; and, I now speak as I feel, and say to my mind, that no better, truer or kinder gentleman ever lived. I know him and love him for what he is."

Now we want to see every living charter member, and every bee-keeper in the South, and all that will come from the North, at our meeting on April 5th and 6th; and let us extend that brotherly love, as mentioned above, all over our land, and then what a happy class of people bee-keepers will be!

No hotel bills to pay at the meeting in Greenville, on the 5th and 6th of April. Let all come and enjoy themselves.

JENNIE ATCHLEY.

CONVENTION DIRECTORY.

Time and place of meeting.

1893.
April 5, 6.—Texas State, at Greenville, Tex.
A. H. Jones, Sec., Golden, Tex.

May 4.—Allegany Co., at Belmont, N. Y.
H. C. Farnum, Pres., Transit Bridge, N. Y.

☞ In order to have this table complete, Secretaries are requested to forward full particulars of the time and the place of each future meeting.—THE EDITOR.

North American Bee-Keepers' Association

PRESIDENT—Dr. C. C. Miller....Marengo, Ills.
VICE-PRES.—J. E. Crane....Middlebury, Conn.
SECRETARY—Frank Benton, Washington, D. C.
TREASURER—George W. York...Chicago, Ills.

National Bee-Keepers' Union.

PRESIDENT—Hon. R. L. Taylor..Lapeer, Mich.
GEN'L MANAGER—T. G. Newman, Chicago, Ill.

Have You Read that wonderful book Premium offer on page 165?

The Biggest Snow-Storm since February, 1885, visited Chicago on Jan. 24th. On a dead level it was nearly 10 inches deep, although it was hard to find a place in the city limits where the snow had not been packed down or scooped into heaps. As soon as the people saw that the storm was in earnest, they began to fight it with brooms, shovels and plows. At every business house the porters and janitors came out with their implements, and if pedestrians didn't dodge they were hit in the back with hard wads of the compressed stuff. Oh, it was a regular, old-fashioned snow-storm, and no mistake about it. The sleighing here has been splendid for several weeks.

Bee-Men to Organize.—There will be a bee-keepers' meeting held in Bronson, Bourbon County, Kans., in Goodno's Hall, on Saturday, Feb. 11, 1893. The object is to organize a bee-keepers' association for Bourbon and Allen counties. You are to bring your dinner basket and stay all day, and are assured of having a good time. There will be a full programme. The meeting is called by J. C. Balch, of Bronson, and others.

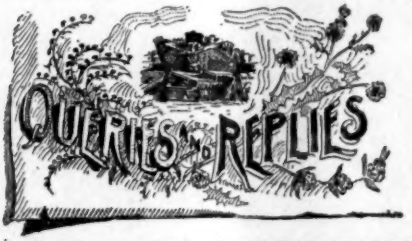
Mr. R. S. Russell, President of the Indiana State Bee-Keepers' Association, says that their late convention at Indianapolis was "not so largely attended as was expected, yet the work performed was very satisfactory, and will result in much good to the bee-keepers of Indiana."

Annual Catalogues or Price-Lists we have received from—

Thomas G. Newman, 147 S. Western Ave., Chicago, Ills.—Bee-Keepers' Supplies.

J. W. Rouse & Co., Mexico, Mo.—Bee-Keepers' Supplies, Bees, Queens, Honey and Beeswax.

J. F. Michael, German, O.—5-Banded Golden Italian Queens, 3-Banded Queens, and Bee-Keepers' Supplies.



Proper Number of Cubic Inches in a Brood-Chamber.

Query 857.—How many cubic inches should there be in the brood-chamber of a bee-hive for the most successful production of comb honey?—N. I.

2,000.—JAMES A. GREEN.

About 1,600.—J. P. H. BROWN.

About 2,000 suits me.—MRS. L. HARRISON.

Near 3,000 cubic inches.—J. M. HAMBAUGH.

From 1,400 to 1,600.—G. M. DOOLITTLE.

Eight Langstroth frames.—WILL M. BARNUM.

Use an 8-frame Langstroth hive.—MRS. J. N. HEATER.

All depends. Minimum, 1,600. Maximum, 3,000.—J. H. LARRABEE.

I do not know. Opinions differ. I prefer about 2,000.—M. MAHIN.

Not less than the space of a 10-frame Langstroth hive.—JAS. A. STONE.

1,900 or 2,000, that may be readily reduced to 1,200 during clover and basswood bloom.—R. L. TAYLOR.

Not less than 8 Langstroth frames. I would rather have 10. But I am not a comb-honey producer.—H. FRANCE.

I think that depends upon the location. I like a hive not larger than an 8-frame Langstroth.—EUGENE SECOR.

I guess the Langstroth is about right. The one-half story case, like Heddon's, is often used with much advantage.—A. J. COOK.

There are few bee-keepers, perhaps, who have made more experiments in the past ten years than myself to determine this question, and my judgment is, that 1,400 cubic inches is about right, or a space to accommodate about 800 square inches of brood-comb. With such a brood-chamber, a queen-excluder is necessary, as also special management in spring breeding.—G. L. TINKER.

I use a hive containing about 1,700 cubic inches, and consider it hard to beat. This question depends somewhat upon the management.—C. H. DIBBERN.

My own idea is, that 10 frames, each containing one foot of comb space, is the correct size. I use the Langstroth frame, about 9 inches deep.—J. E. POND.

At least 2,000 up to commencement of work in surplus receptacles. After that it may be reduced a third, if you want the job of feeding for winter.—P. H. ELWOOD.

As no two apiarists use the same methods exactly, it will be impossible to give the size of hive for the "most successful production of comb honey."—H. D. CUTTING.

Let the comb-honey men answer; but my convictions are that I would risk a standard Langstroth without contracting for either comb or extracted honey.—S. I. FREEBORN.

To our minds, a hive large enough to receive the eggs of the most prolific queen is better than a small one, even for the production of comb honey. We have tested it before the introduction of the honey extractors.—DADANT & SON.

I don't know. I'm using eight Langstroth frames, but I'm not really sure I've gained anything by changing from ten. Even if eight frames are all right for me, different management might make a different number right for some one else.—C. C. MILLER.

No matter what anybody tells you, this is a matter that depends upon locality and method of management. It would take an article of ordinary length to discuss it. With my method of management I want a brood-chamber as large as the standard Langstroth.—G. W. DEMAREE.

Ten or twelve years ago, when I produced comb honey by the ton, I thought there was no better than the Simplicity hive holding ten Langstroth frames, and were I to begin producing comb honey again, I would be fool enough to try the same size hive. But as I am behind the times on comb honey, probably I had better say, I don't know.—MRS. JENNIE ATCHLEY.

Report of the North American Bee-Keepers' Convention.

Written for the American Bee Journal

BY W. Z. HUTCHINSON.

(Continued from page 142.)

The Secretary then read an essay from Prof. A. J. Cook, of Agricultural College, Mich., on

The Analyses of Honey.

Without any question, the adulteration of honey is one of the most serious obstacles to success that now stands in the way of bee-keepers, but like any other thief it can be restrained if it can be caught. We now know that through the aid of chemical analyses we can detect this arch enemy. And, of course, detection means capture.

Heretofore there has been doubt regarding the ability of chemical science to certainly distinguish the genuine from the spurious. The formulæ in use gave the maximum and minimum amounts of water. Every bee-keeper knows that since the advent of the extractor, and the often under ripe product, which is surely genuine honey, though not of best quality, the above rule would not be reliable.

Again, the amounts of cane and reducing sugars were to guide in making the determination. These vary largely in honey of undoubted purity, and the limits fixed upon were arbitrary. It is quite possible that these limits were not correctly fixed. We know that bees reduce the sugar in transforming nectar to honey, and it stands to reason that this reduction may be much decreased if honey is stored rapidly.

Again, honey comes from such varied sources, that a very large number of analyses must be made to fix upon the limits. It seems certain that the old rules are not entirely reliable.

The third means to a correct determination rests with the polariscope. It has been supposed that honey would always give a left-handed rotation. But when we find that this varies from 1° to 25° direct, and from 6° to 30° indirect—indeed some genuine honey gives a right-handed rotation—we may reasonably assume that arbitrary limits may mislead here as before. And that owing to the fact that bees may reduce the sugar more or less, and to the innumerable sources from whence nectar comes, we may conclude again that very many analyses must be made, to determine the range in all the varied cases, and that very likely the limits set in the past have been too narrow.

From the investigations made the past season, through the kindness of Drs. Wiley, Kedzie, and Scovell, in which over 50 samples of honey from different sources were analyzed, we have it pretty conclusively shown that our chemists *now* can *make* determinations that are practically conclusive. We can also detect a mixture of even one-fourth, or much less, of glucose with honey, by the high right-handed polarization. Yet we find that some honey from honey-dew—very poor, rank stuff—gives the same high right-handed polarization. As the rank honey-dew honey could never be put on the market, we see that practically we are secure at this point. It is desirable that we have a way to surely detect this honey-dew honey from honey adulterated with glucose, aside from the appearance and taste; and I congratulate the bee-keepers that we have one of the best chemists of this or any other country, Dr. H. W. Wiley, heartily in sympathy with us, who is now engaged in solving this problem, and who, if the thing be possible, will discover some re-agent that will make even this determination sure. As glucose will always be the greatest adulterant, owing to its cheapness, light color, and slowness to granulate, we see that we have the "detective" that can lay fast hold of this defrauder—adulteration.

If glucose were fed to bees and so converted into honey, I do not know whether we could detect it or not. That is a problem which 1893 is to solve. But this is not very practical, for bees are so adverse to taking glucose that it can never be fed at a profit, and so such honey, whatever its character, will never be produced. The very fact that it is not a good food for bees, makes us regard it with ill-favor even though converted into honey. But as just suggested, that is not a question of practical importance.

The experiments of the past season show that the chemist cannot by use of the present methods determine honey from cane-sugar from that of the best

floral honey. This is no surprise to us. Honey is transformed nectar. This transforming process simply reduces a portion of the cane-sugar. It is the same whether the nectar be floral or cane-sugar syrup. When we eat and digest cane-sugar we do precisely the same thing. Floral honey consists of a small portion of unreduced cane-sugar, the reduced sugar, either already in the nectar, or produced by the bees, plus a very small amount of certain additions received while in the honey stomach of the bee, as formic acid, etc., plus certain aromatic or flavoring organic substances from the flowers, which give to each special kind of honey its peculiar flavor, and enables us to distinguish it. In clover honey this last is very slight or mild ; in linden honey more pronounced; in buckwheat honey very marked.

As clover honey is the choice of most lovers of honey, we see this last element is not always an advantage. Could we easily, cheaply and harmlessly remove it and its companion, the dark hue, from buckwheat honey, we would be glad to do so. In transforming honey, the bees are not able to change this element of honey no more than is the cow able to change a similar though disagreeable instead of agreeable organic element which she finds in leeks, and which causes leeky butter.

Now honey from cane-sugar is precisely the same as the above, minus this very minute organic element. So the chemist detects no difference. And even lovers of honey pronounce this last real honey, and of excellent character, and they are certainly correct. You all know that Mr. Doolittle, who, by the way, knows much, believes that the younger bees transform the nectar largely, that possibly they swallow and regurgitate it several times, that the ferment from the head-glands may the more perfectly transform the nectar.

Last summer we fed 23 pounds of sugar syrup in one night. Some of this was extracted the next morning, and some after it was capped over, several days later. I was interested greatly in the analyses of these two samples of honey. One, No. 2, that extracted the next morning, gave: (Dr. Scovell's analysis) direct polarizatinn—1.1°; indirect—11.9°; sucrose, 8.21 per cent.; reducing sugars, 66.67 per cent., and water, 17.65 per cent. The other gave direct polarization— -6.0; indirect — -11.75; sucrose, 4.00 per cent.; reducing sugars, 73.39 per cent., and water, 16.80 per cent. It will be seen that though the change was principally effected the first night, yet there was a marked modification afterward, too great to be accounted for by the simple evaporation of water. With Dr. Wiley's approval, I shall hope that we may have more light on this special point another season. It seems now to support Mr. Doolittle's view.

If cane syrup was mixed with honey and not fed to bees, it would be adulterated product, and not honey. This could be told by the chemist at once. The large amount of sucrose and the altered rotation of the polarized ray would reveal its true product. It would not be honey, would not possess the peculiar honey flavor which all know too well, and so to sell it as honey would be fraudulent and indefensible.

Dr. Wiley is now analyzing several samples of honey-dew honey, that we may have more light on that product. In 1893 we shall have several analyses made of cane-sugar syrup, and the same mixed with honey in varying proportions, and the transformed product after each is fed and stored by the bees. We shall also have analyses of the same, except commercial glucose will replace the cane-sugar. And with these and the conclusions that Dr. Wiley will give us, I think we shall be in possession of all that we shall need in this direction. Even now we have the detective. What we want, and must have, is a live, wide-awake prosecutor, which we are to have in the National Bee-Keepers' Union. And adequate laws, which can be easily secured, if we wake up to the importance of the subject, and ask that they be enacted.

It seems to me that I see a brighter path in the near future for apiculture; nor do I believe it is wholly my optimism that produces this impression.

A. J. Cook.

In reply to the foregoing, Prof. H. W. Wiley, Government chemist, addressed the convention as follows:

The Adulteration of Honey.

Mr. President, Ladies and Gentlemen:

I have been much interested in Prof. Cook's essay on the subject of the adulteration of honey, and am glad to have this privilege of complying with your request to add something more in the same direction.

After the publication of the results on the analysis of honey contained in Part 6 of Bulletin No. 13, the question was raised in some quarters whether or not chemists were able to distinguish be-

tween a pure and an adulterated honey. Some of the samples which we examined, and which were purchased in open market in different cities of the country, were found to be adulterated with glucose, and it was claimed that such an adulteration was unlikely, and that the chemists had been mistaken. Prof. Cook took a great deal of interest in this matter, and asked permission to send a number of samples of honey and honey substitutes, designated only by number, to the laboratory of the Department of Agriculture for examination. He also sent similar samples to the laboratory of Prof. Kedzie, of the Michigan Agricultural Experiment Station, and to Prof. Scovell, of the Kentucky Agricultural Experiment Station. In all 53 samples of honey were received at our laboratory from Prof. Cook, and these have been analyzed, and the data transmitted to him.

We have not yet been informed by Prof. Cook of the nature and origin of the samples, and therefore cannot tell, as far as that is concerned, what success we have met with in distinguishing between the good and the bad; yet Prof. Cook has already published the fact that all three of the chemists engaged in this work have detected every spurious or adulterated honey which was contained in the lot. On the other hand, a few samples which were of known purity have been classed as "suspicious," but not condemned as adulterated. The general result is that the chemist working with ordinary care, and with well-known processes, is able to detect all ordinary adulterations of honey, but at the same time he may include among the spurious articles some samples which are genuine.

The special forms of adulteration which we were expected to determine were glucose and cane-sugar. Both of these adulterations are very easily determined.

Some of the samples of honey received were obtained by feeding directly to the bees cane-sugar syrup which was stored rapidly and at once extracted. Other samples were obtained from bees which were storing honey very rapidly from a known source, and this honey was taken as soon as deposited. These general items of information I have gleaned from the article Prof. Cook has already published in regard to that examination.

I am sorry not to be able to entirely agree with Prof. Cook in his definition of honey. A few years ago I defined honey at the saccharine exudation of flowers gathered and stored by bees. This definition may properly be applied to any saccharine exudation of flowers or plants gathered and stored by bees, provided they are not aided in this matter by any artificial means. In other words, cane-sugar which a bee would of itself extract from a plant would very properly be classed as pure honey when stored by the bees in the hive; but cane-sugar fed to the bees in the form of syrup and simply stored by the bees in the hive could hardly be deemed a pure honey. This is a matter, however, which it is not within my power to determine, and I shall be much interested in knowing the result of the discussion now going on among your own members on what constitutes pure honey.

The problem of the adulteration of honey has been somewhat complicated within a few years by the discovery that certain honeys or saccharine exudations gathered by bees show at ordinary temperatures a right-handed rotation. Such honey was formerly supposed to be of coniferous origin, that is, gathered exclusively from pine trees. Later it has been shown that such honeys are probably derived from exudations produced by this aphis or plant-louse, either directly from the trees, through the influence of the louse, or through the organism of the louse itself. This exudation is commonly known as "honey-dew," and entomologists are undecided whether or not the honey-dew passes through the organism of the louse, or is the result of the attack of the louse upon the plant. At any rate, such exudations show peculiar properties, and it is doubtful whether, under the definition given above, they could be classed as genuine honeys.

It is said by Prof. Cook that a number of the samples of honey sent by him were of plant-louse origin, but the numbers representing these samples are not yet known to me. I have, however, found in the number sent by him, six which are peculiar in their optical properties showing a slight right-handed rotation not due to cane-sugar, and which I would class as suspicious honeys. It is more than probable that it will be found that these honeys are of plant-louse origin.

Prof. Cook doubts whether or not a honey made from pure cane sugar, which has been stored for some time in the hives, can be detected from a genuine floral honey gathered and stored by bees. In the present state of our chemical knowledge the doubt of Prof. Cook is well founded. I am confident that it will not be long before we shall

be able to discriminate definitely between such articles of artificial honey and genuine honeys as those above mentioned. Investigations in this line have not gone far enough to enable any definite statement to be made now, but I can only say that the results are very hopeful, and lead to the just expectation of soon formulating a method of discrimination between the honeys mentioned.

One property of pure invert sugar will be found very valuable in such an investigation, namely, the fact that pure invert sugar made from cane-sugar when examined in a polariscope at a temperature of about 88° C, is optically neuter, that is, neither deflecting the plane of polarized light to the right nor to the left. In every case of a pure floral honey which has come under my observation so far, it was found that at the temperature mentioned it showed a right-handed polarization. In two of the samples sent by Prof. Cook, it was found that the honey examined at 88° showed a left-handed polarization. Now this is due probably to the fact that the honey was partially crystallized, and the samples sent were the liquid portion consisting almost exclusively of levulose, while the solid portion not sent would consist almost exclusively of dextrose. This is only a supposition on my part, as I have not yet learned from Prof. Cook the nature and origin of the samples mentioned. But every one will agree that a honey obtained by drawing off the liquid portion from a partially granulated honey would not in any sense of the word be a pure, normal honey, any more than the residue would be. It is possible, however (and that must be mentioned here), that the nectar of some flowers contains naturally an excess of levulose, in which case the honey gathered therefrom, although left-handed at 88°, must be considered pure. These are matters which subsequent investigations will make clear.

Another important factor in the examination of honey is in the amount of reducing sugar, so-called, which it contains; that is, the quantity of sugar in it which is capable of reducing a copper salt to the condition of a sub-oxid. In all pure floral honeys it has been observed that the percentage of reducing sugar in the dry substance does not fall in any case below 85°, while in general it reaches nearly to 90° or above. When, therefore, a honey is examined in which the reducing sugar is decidedly less in quantity than 85 per cent. of the dry substance, it must at once be regarded as suspicious.

The percentage of ash is also a matter of some importance. It has been found so far that in the suspicious honeys in the samples sent by Prof. Cook, that the percentage of ash is greater than in the honey which seems to be pure. Further investigations, however, will be necessary to determine whether this is a general rule or not.

Strange as it may seem, one of the most difficult things in the analysis of honey is to determine the amount of water which it contains. One of the simplest methods consists in drying a small portion of the honey in a flat bottom platinum dish for about 15 hours, at the temperature of boiling water. Determined in this way the average percentage of water in the samples of honey examined was found to be about 16. The lowest percentage found was 13.75 in a clearly adulterated sample, and the highest percentage found was 22.75 per cent. in one of the samples which was abnormal in having still at 88° a left-handed polarization.

In general it may be said that it is possible for any one who is disposed to make a mixture of pure honey with a small quantity of certain adulterants in such a way that the chemist would be unable to detect the fraud; but such a method of adulteration would never be practiced commercially because it would not be profitable. On the other hand we may boldly say that in all commercial adulteration the chemist will be able to find the fraud, and the skill of the chemist will doubtless keep pace with or excel the skill of the adulterator.

In the general examination made by the Department, which has been referred to above, two particular samples of honey deserve a special word. In almost every market of the United States were found samples of honey labeled "Pure Old Virginia Honey," manufactured by Geo. K. McMechen & Son. In no instance was a sample of this honey found to be pure. All samples purchased in the open market were adulterated.

Another peculiar sample of honey was labeled "Hoge's Horehound Honey," good for coughs and colds, and said to be gathered from a certain region in California. This sample was accompanied with the most enthusiastic testimonials, and also had a certificate of a justice of the peace in regard to the nature of the locality where it was supposed to be gathered. Several samples of this honey were obtained, and they were

found to be pure fabrications, consisting of cane-sugar syrup with about 3 per cent. of alcohol. They contained no honey whatever.

I have thought the members of this Association might be interested in seeing some of the apparatus and re-agents which are employed in the analysis of honey, and in looking at some of the operations of a chemical nature. I have on the table here the principal apparatus and re-agents employed in such examinations, and which I shall take pleasure in showing the members.

(The polariscope and chemical apparatus used in honey analyses were exhibited and explained to the audience.)

In conclusion, permit me to say that the work of the Department has shown that of the liquid honeys on sale, bought in open market, nearly 45 per cent. are adulterated. Every bee-keeper can see at once how greatly enhanced in price the product of his industry would be should such adulteration be prohibited and prevented. It is necessary that all should work together in harmony and in earnest to secure this result. The bee-keepers will find the Department of Agriculture hereafter, as heretofore, doing everything in its power to detect and prevent the adulteration of honey. H. W. WILEY.

Prof. C. V. Riley—There is such a difference in honey obtained even from natural sources, and it is so difficult to be able to know *exactly* from what source a sample comes, that I regard it as extremely doubtful if the chemist will ever be able to say positively in regard to the purity or impurity of all samples.

A. N. Draper—Can a person who is not a chemist, by the use of litmus paper, or some chemicals, determine in regard to the purity of honey?

Prof. Wiley—No, sir. It requires great skill and training, and the proper apparatus.

Although Prof. Wiley thought that there was so much adulterated honey on the market, he doubted if it was of a character that was injurious to health. He considered glucose a healthful food, but said that its use robbed the bee-keeper of selling just so much honey.

(Continued next week.)

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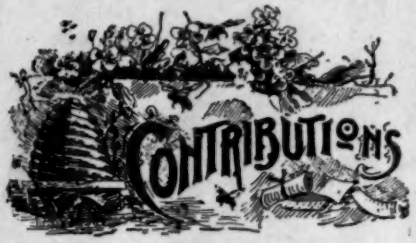

A New Era in the Production of Honey.

Written for the American Bee Journal

BY J. F. LATHAM.

If the conventicle spirit of the times is portentous, it is apparent from the gist of the discussions emanating from some of our "leading bee-keepers," that a new system of honey-production is in process of evolution. Whether it is to result in bee-manipulation, or the absence of "bee-mediation," much depends upon the definition applied to the terms, as the basis of the movement indicates, in a ratiocinative aspect, that a reaction is in progress of inauguration strongly tending to artificial mediation, which may culminate in raising the "scientific pleasantry" to the head of the list.

Sugar-honey! Glucosed honey!! Is not the lauded "gift of the gods" falling into disrepute? Then, again, "honey-dew honey"—a newly-coined Anglicism—is placed on the list of honeys as an offspring *Corpus sinepectore;* for mutual adoption by the apiarian world.

What is to become of the pure nectar from the flowers—Honey—that has received so much admiration in poetry and prose for more than 30 centuries? Surely, if the *medical qualities* alone of honey are a sham, I fear Pluto's dominions may not be adequate for the immigration to his realm; and an overflow will be left behind to chant the virtues of sugar-honey.

But enough of this. Let us stir up the witch's cauldron, and try a survey of the contents.

First, it may be asked with propriety in what exists the necessity of feeding sugar syrup to bees for the purpose of obtaining honey by the process? How often we have been told in the bee-papers, by our mentors in bee-knowledge, that sugar syrup fed to bees, and stored by them in the combs, will be sugar syrup still. That has been my experience while feeding sugar syrup for

winter stores. This fact is noticeable when sections of honey, in bright, new combs, are taken from the hives as soon as filled and capped, and when allowed to remain over the brood apartment until the close of the season. The flavor of honey in the comb, that has remained on the hive through the season, is modified more by the odor of the pollen in the brood-combs than any other way, and, in many instances, very agreeably so. The musky odor from the bees may have something to do with the ideal quality—the subtile "twang" purported to exist in "*sugar*-honey," after it has passed through the bee's honey-stomach and received the benefit of the "digestive" process. But as the theory of digested honey appears to be somewhat metaphysical, perhaps the alimentive propensitives of the narrator may possess attributes outside of the sphere of common mortals, and is therefore better qualified to judge of the merits of his favorite sweet than those who do not have "it on their tables every day."

If the advocates of sugar syrup prefer it to honey, they have an absolute right to use it, and no one has a right to object to their doing so; but when they attempt to purloin the merits of honey to foster their intents, when offering their preparation for sale, they should receive a decided condemnation from every *bona-fide* bee-keeper in the land.

The plea of a honey famine is no excuse for dishonesty, or a movement of the kind advocated by the would-be votaries of "sugar-honey." If the fountains of nature are insufficient for their greed, why not "step down and out;" and adjure the pursuit of bee-keeping, thereby freeing it from the odium of a masked insincerity?

On page 160 of Prof. Cook's "Manual of the Apiary," 3rd edition, may be found the following, viz:

"In all feeding, unless extracted honey is what we are using, we cannot exercise too great care that such feed is not carried to the surplus boxes. Only let our *customers once taste sugar* in their comb honey, and not only is our reputation gone, but the whole fraternity is injured."

If the foregoing admonition from the Professor was sound 15 years ago, it seems that an explanation is needed from him to reconcile his teaching then with those purported, on page 20 of the BEE JOURNAL, to have been uttered in the 27th annual convention of the Michigan State Bee-Keepers' Association, viz.:

"Pres. Taylor—I would like to ask Prof. Cook, if he were producing sugar-honey, would he sell it for *honey*?"

"Prof. Cook—I should. I agree with the essayist [Mr. Hutchinson] in every point," etc.

There is an old adage, that "every house has its skeleton." Should this become a reality with the bee-keeping fraternity, they may find that, like Banquo's ghost, "it will not down."

P. S.—Since the foregoing was written, I have received the BEE JOURNAL for Jan. 12th, and I find, on perusing its contents, that my position on the "sugar-honey" question is well fortified. The latest outcrop of scientific labor *in the interest of bee-keeping*, is likely to prove an abortion.

Success to the "old reliable" AMERICAN BEE JOURNAL.

West Cumberland, Me.

Convention Reports—Bees and Pollen, Etc.

Written for the American Bee Journal

DR. C. C. MILLER.

A report of a live bee-convention may be the most interesting part of a bee-paper, and it may be made the very poorest. Some secretaries report all the part that the general reader wants to know, omitting that which is of no particular interest to any except members of the convention, while others omit entirely that part that outside bee-keepers want to hear, and give exactly that part which has no interest at all for outsiders.

In reading a report of a convention, the principal thing, if not the only thing that interests generally is the bee-talk. There are other things of prime importance to be kept in the Secretary's book, as the names of members and the passages of resolutions demanding action at the next meeting, but that doesn't interest the outside reader. In fact, if the discussions are fully reported in any of the bee-papers, there is little need to enter them on the Secretary's book, in which case there is little entered on the Secretary's book that is worth printing, however valuable it may be to the society.

I am not greatly interested to know that a vote of thanks was given to the landlord for the excellent manner in which his parsnips were cooked, nor do I care much to read the Mayor's speech of welcome to the beautiful town of Skeezington, but I am very much inter-

ested in hearing every word of practical bee-talk that occurred.

Condense as much as you like, so long as you leave everything clearly understood, but please give us in print only that which will be of interest to those outside of the society, and you will find, as a general rule, that that includes very little more than the discussions.

BEES STARVING ON POLLEN.

I was just a little surprised to find the answerers on page 822 (1892) so unanimous in the opinion that bees could not live on pollen alone. The general verdict seemed to be that of Mrs. Atchley, that "They will live just about long enough to starve to death."

Two of the number were of the opinion that when bees are confined to a pollen diet they die because pollen makes them sick. There may be cases where this is true, and for aught I know it may be true generally, but I am very sure there are cases where bees finish up their honey in the winter, and then starve with plenty of pollen inside the cluster, and yet show no signs of diarrhea. I have seen more than one case of this kind, with combs and frames all nice and clean. I think it quite likely that when bees die from starvation after a long confinement, they will suffer from diarrhea, whereas if they had less honey and died earlier there might be no disease.

AN IMPORTANT DISCOVERY (?).

On page 825 (1892), C. J. Robinson says: "The notion that a virgin queen receives from a drone into her 'sac' sufficient spermatic fluid to impregnate her worker-eggs during an existence of six or more years, is the sum of ignorance." As this "sum of ignorance" is to be found generally among bee-writers and authors, barring the unusual age given to the queen, it would be interesting to know by what means Mr. Robinson obtained his light.

"APICULTURAL LITERARIANS."

Referring to the article of Mr. Clarke, on page 827 (1892), I wonder if it is not possible that he and Mr. Heddon are looking on different sides of the same shield. There are some things connected with bee-keeping in which I would give much more for the views of a man who kept 100 colonies, than of one who kept only one. On the other hand, there are things as to which the views of a man who had only a single colony would be worth just as much, or more, than if he kept a thousand.

If Capt. Hetherington were in the presence of some of the scientists who have with great painstaking found out all about the internal structure of the bee, he might stand in open-mouthed wonder, and feel that he knew very little about bees; but if one of those same scientists wanted to get a big crop of honey, he might be glad of the Captain's advice.

Even in every-day, practical matters, the close observation of the man with a few colonies is hardly possible for the man who is kept on the keen jump to get through the work of his hundreds. But on either side, there may be such a thing as saying a good deal without knowing much—as he that "darkeneth counsel by words without knowledge."

Marengo, Ills.

"That Bee With the Glands"—A Challenge.

Written for the American Bee Journal

BY DR. J. W. M'KINNEY.

On page 861 of the BEE JOURNAL for Dec. 29, 1892, also on pages 19 and 20 of the current volume, the strange and positive statement is made to the effect that "bees can make honey out of cane-sugar that cannot be told from honey." It is absolutely surprising to find men, claiming to be men of science, make such glaringly absurd statements as are here referred to.

As the publisher of the BEE JOURNAL, perhaps judiciously, has seen fit to interdict the discussion of the "sugar-honey" question through its columns, I would ask permission to make a few plain statements in regard to this matter.

1. That cane-sugar cannot be converted into honey by bees.

2. That honey as gathered from the nectaries of flowers by bees contains, in addition to saccharine matter, a *mucilaginous* substance, together with an aroma and flavor not present in cane-sugar, nor in the syrup made from it.

3. That bees cannot supply the mucilage, etc., of honey to syrup made from pure cane-sugar.

4. That the acid present in honey and in sugar syrup is a vegetable acid, generated by the action of atmospheric oxygen, and not an animal acid, or an acid secreted by the bees.

These are some of the plain facts pertaining to pure honey and sugar syrup; and as Prof. Cook has made the positive

statement that they cannot be distinguished the one from the other, after the bees have handled them and stored them in their combs, I wish to make this proposition:

I will agree to deposit $100 with Thomas G. Newman, the General Manager of the National Bee-Keepers' Union, or with the editor of the BEE JOURNAL, Geo. W. York; and Prof. Cook, or any one else, to deposit $50. Then there shall be furnished a sample of pure honey gathered from white clover, Spanish-needle and heart's-ease stored separately in new combs and capped over; together with a sample of pure cane-sugar syrup that has been furnished the bees and stored by them in new combs and capped; and if I cannot distinguish the sugar syrup thus stored from either of the samples of honey, I will forfeit the money deposited. Should I succeed, however, in making the distinction, I will "take down the pot," and present the Professor with the samples of honey and sugar syrup.

Camargo, Ills.

☞ Do not write anything for publication on the same sheet of paper with business matters, unless it can be torn apart without interfering with either part of the letter.

Bees Wintering Well.

The winter is rather hard on bees, that is, outside, in this locality. I have 100 colonies in the cellar, and they are doing well. J. R. ESKEW.

Shenandoah, Iowa, Jan. 21, 1893.

"Purple" or Italian Clover.

On page 117, Mr. O. P. Miller asks about "purple clover." The name is a humbug, but not the plant. It is nothing but Italian clover—crimson trefoil, or scarlet Italian—*Trifolium incarnatum*. It is an annual or biennial plant, according to the time when it was sown—in fall or spring. I tried to sow it in the fall (as it is mostly practiced in my native country), but it did not stand the American winter, here in central Illinois. I will try it again as an annual. It resembles red clover, but the spikes of flowers are long—as long as 6 or 7 inches—which open successively in about 4 weeks, and give an immense quantity of seed, far larger than red clover. The flower-tubes are much shorter than those of red clover, are perfectly accessible to bees, and frequented with unusual zeal. Ten dollars per bushel is exorbitant.

Sigel, Ills. WM. LEERS, M. D.

Queens Showing Their Age.

Queens do not show their age all alike. A queen's looks do not always indicate correctly her age. They vary in their outward appearance the same as mankind. Some queens live to be five years old, and some only one year. Queens, as a rule, the first year look very nice and bright. A good queen, the second year, looks about as nice as the first year; the third year her beauty begins to fade. As a rule the fourth year the wings get short, and they get short all over—a good deal like you will look when you get old; you will show your age. Those queens that Dr. Mott spoke of on page 45, put me in mind of buff Coachin hens—they lay a while and then want to set. I never had a queen act as his did. I have had some start out slow, but after they got started they sent the eggs out like shot from a double-barrel shot-gun. Practice makes perfect. G. W. NANCE.

Peiro, Iowa, Jan. 19, 1893.

Feeding Bees in Winter, Etc.

In the swarming season of 1891 I accidentally found a swarm of bees settled on a bush by the roadside late in the evening, as I was coming home from work. We got a hive and hived them, and brought them in. They worked nicely and stored honey. When winter came on, I placed them in a cave. I was very anxious about them, fearing they would not winter all right, as my previous experience with bees was that they always died; but this time they went through all right.

On July 10, 1892, they sent out a nice swarm, which I hived, and they filled the hive full of honey. Again on July 19th they sent out another swarm, which died about with the old year, having no stores. I failed to see after

them, and feed in the fall at the proper time, so I made a fixture to feed after cold weather set in, which was as follows:

I took a box 6 inches square by 10 inches long, with both top and bottom removed; in place of the bottom I placed in a glass, and set the top of the box up to the entrance of the hive, and supported it by means of a cord tied around both the hive and box (or feeder). In the top of this box I split out a strip 3 inches wide the full length of the box, and tacked screen-wire over it, to admit of air and ventilation. I put it in the cave opposite the door which opens to the south, and admitted sunshine. In the box I placed a small trough which I filled with syrup; on sunshiny days the bees would work at it well, but they failed to get enough in sunshine to keep them through the cloudy weather, so my feeder was a failure.

I also caught three wild swarms last swarming season. I now have 5 colonies that I think are in reasonably good condition, and comfortable in the cave. I have them in box-hives, and will transfer to movable-frame hives in the spring, and will Italianize them and try to take care of them on a little more scientific principle. 1. Please give the dimensions of the Langstroth hive, and how to make it. 2. In transferring bees from box-hives to movable-frame hives, will foundation starters, 3 or 4 inches wide, be sufficient, or will it be necessary to give full sheets.

O. E. McCABE.

Bear Grove, Iowa, Jan. 5, 1893.

[1. The size of the Langstroth frame if 9⅛x17⅝ inches. Any supply dealer will be glad to furnish you a sample nailed hive. Consult our advertising columns for dealers.

2. It is generally considered best to hive swarms on full sheets of comb foundation.—ED.]

Coldest Weather in Five Years.

Bees have not had a flight since the first part of last December. They are sleeping *a la* Clarke. We have had the coldest weather—that is, continuously cold—that we have had in five years, though if bees are packed in good shape, they will be all right. The mercury has been 15° below in places.

GEO. SPITLER.

Mosiertown, Pa., Jan. 19, 1893.

Alsike Clover for Seed and Honey.

There is no question in my mind at present, as to whether it pays to raise Alsike clover or not. From eight years' experience with it, I feel safe to advise every bee-keeper that is located in the clover belt, to try at least a small patch next year, on low ground. It grows very luxuriantly with timothy, and makes an excellent hay for either cattle or horses. Last year was the first that I cut it for seed. The patch that I cut for seed was only one-third of a stand, and yielded four bushels of nice seed per acre, and is selling fast to my neighbors at $10 per bushel; and the clover after it is thrashed makes good feed for cattle, even if rain-beaten and bleached before stacking. I have never before been able to obtain $40 for the use of an acre of ground, and with so little labor; and, besides all this, I also had a fine flow of honey of excellent quality. Hundreds of acres will be sown here next season.

FRANK COVERDALE.

Welton, Iowa, Jan. 19, 1893.

Too Little Protection for Winter.

Bees did not do much last season—did not get honey enough to supply the home market, yet the bees went into winter quarters with plenty of honey. I built a bee-cave last fall, and put in 30 colonies which I think are doing finely. But a great many here leave their bees out on the summer stands with but little protection. I think this winter will be pretty hard on them, as we are having a pretty cold winter so far. We have had fine sleighing for over a month.

SAMUEL FLORY.

South English, Iowa, Jan. 17, 1893.

Results of the Season of 1892.

My report for 1892 is as follows: I put into the cellar 215 colonies Nov. 20, 1891, and took out 210, which spring dwindled to 170, almost all weak, and some very poor, and did not gather any surplus. About 100 got in fair condition for the honey-flow by July 1st. I obtained about 2,500 pounds of comb clover honey, and about 1,500 pounds of extracted clover honey. My total amount of comb honey was 5,155 pounds, and total of extracted was 7,580. The fall honey was heart's-ease.

The spring of 1892 was the worst for bees that I remember of in all my bee-keeping—for more than 20 years. The bees were in poorer condition in June

than in April, when they were put on the summer stands. I have now 230 colonies in the cellar, in fine condition, that will average about 60 pounds each, of good honey. My best wintering breeding colony has had only 2 dead bees on the bottom-board so far this winter; while I have a few others that have had more than a quart of dead bees to date.

I am still not discouraged with bee-keeping, and the prospects for another year are promising. There is plenty of white clover and plenty of snow to cover the ground to keep the clover from getting frozen. N. STAININGER.

Tipton, Iowa, Jan. 20, 1893.

Dark Italians or Golden Italians?

Which are the best honey-producers, dark Italian bees or golden Italians? I have 32 colonies, mostly Italian hybrids, and one golden colony, that I exchanged queens last fall. As honey gatherers, it was too late to find out much. I have two golden queens due me in the spring. I have heard it disputed, or claimed, that the dark Italians would store more honey and breed up faster than the goldens. I do not want to make any mistakes. I want the bees that will breed up the quickest in the spring, and store the most honey.

Cazenovia, Wis. JOHN BOGGS.

[Will some one who has had sufficient experience with both varieties, please reply to the above question?—ED.]

Hiving Swarms on Drawn Combs.

After reading Mr. Hutchinson's article on hiving swarms on drawn combs (page 823 of 1892), I must say I am surprised, too. It seems very strange that two bee-keepers living in nearly the same locality have such a marked difference in experience. For the last ten years I have hived swarms on starters, full sheets of foundation, and full drawn combs, resulting in favor of the last named. I hived 20 swarms on drawn combs last year, and met with the same result—one colony giving me 80 pounds of comb honey, 50 pounds of which was gathered in 14 days from the time they issued. I do not see anything slow, gingerly or grudgingly about that, do you?

Last year I hived swarms on starters only; I put queen-excluders on, and then the supers, and now for the result: About one out of five gave me 20 pounds of comb honey, and filled their brood-chamber, while the remainder gave me no finished sections, neither did they fill their hives. Just think of the condition they were in for winter, or for the fall honey-flow! You may say that I did not hive my swarms, but I did just the same as I always do. Please remember that the honey-flow lasted about the same length of time.

Mr. H. also speaks about sorting out all imperfect combs, and melting them into wax. Yes, we all know what a desirable job that is—it is not only a disagreeable work, but a very expensive one. ORVILLE JONES.

Stockbridge, Mich.

Down with Honey Adulteration!

I am very glad to learn the AMERICAN BEE JOURNAL is still taking a firm stand against the aduleration of honey in any form, and that earnest work has already commenced for its suppression. I consider it a more worthy enemy to draw swords with than the one the National Bee-Keepers Union (of which I am a member) has been fighting. The monster must be crushed. All honor to Prof. Cook for any truthful discoveries, but I feel as if it (the idea of bees turning sugar into honey) would do ten times as much harm to our chosen pursuit as good—it would make a loophole for the adulterators (pension them off, so to speak) to slip through, and then continue their villainous work. Hurrah for the amendment to the Constitution of the National Bee-Keepers' Union!

WALTER HARMER.

Manistee, Mich., Jan. 6, 1893.

Value of Bee-Literature, Etc.

We have had cold weather here, 18° below zero, so I thought I would look over my back numbers of the AMERICAN BEE JOURNAL, and I see that I have been a subscriber more than 20 years. Then the BEE JOURNAL was $2.00 per year, and I would rather pay $2.00 now for it than to do without it. The BEE JOURNAL and other bee-papers are our welcome visitors. We are always sure to find something new, and they are seldom laid down until every article is read; then when we are in bed we can think of what we have read. It seems wonderful how much can be learned about bees, when we read the many periodicals and books that have been written, all devoted to the busy bee. It seems the more we read and study, the

more we are surprised how little we know about our pets.

The farmer can breed his stock just as he pleases; I wonder how long it will be until the bee-keeper can say the same with his bees. Mr. Doolittle says he would willingly give $50 for a plan by which he could mate the queens that are reared to selected drones as he wishes. Now cannot some of our leading bee-men help to solve this question, and if so, then I would say give him the highest seat in our ranks, and call him our leader. SAMUEL UTZ.

Kenton, Ohio, Dec. 20, 1892.

Good at Starting Queen-Cells.

Bees in this locality were put into winter quarters in pretty fair condition. The honey crop was not very good. I secured 25 pounds of honey, on an average, per colony. I experienced something new last summer. One evening, as I came home from my work, I found a cluster of bees on a bush. I hived them at once, as the sun was set, on one empty comb. The next morning I found some 70 queen-cells started. I at once gave them a queen, as I had some in readiness; but to my surprise they at once balled her. I then caged her and left her with the bees for 48 hours, then turned her loose, and she was accepted. Why did not these bees return to their hive? If queenless, why not accept the queen at once? There was no brood or eggs in the comb.

Bee-keeping is carried on in a "hit or miss" way in this locality. I see a great many box-hives. I saw some last summer which were in the weeds and thicket-grass so that it took a bee about five minutes to climb and crawl through; that is a fact. The owner said he would quit keeping bees. I think that is the best plan for him.

FRED BIESEMEIER..

Sterling, Nebr., Jan. 2, 1893.

"The Winter Problem in Bee-Keeping" is the title of a splendid pamphlet by Mr. G. R. Pierce, of Iowa, a bee-keeper of 26 years' experience. It is 6x9 inches in size, has 76 pages, and is a clear exposition of the conditions essential to success in the winter and spring management of the apiary. Price, postpaid, 50 cents; or given as a premium for getting one new subscriber to the BEE JOURNAL for a year. Clubbed with the BEE JOURNAL one year for $1.30. Send to us for a copy.

AMERICAN BEE JOURNAL

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The Date on the wrapper-label of this paper indicates the *end* of the month to which you have paid for the JOURNAL. If that is past, please send us one dollar to pay for another year. This shows that Mr. Porter has paid his subscription up to the *end* of December, 1893:

Wallace Porter Dec93
Suffield, Portage co, Ohio

REMOVAL NOTICE.

In order to get better accommodations, and for greater convenience, we have moved the AMERICAN BEE JOURNAL into a new office, at 56 Fifth Avenue, near the northwest corner of Randolph St. Our correspondents, and friends who may desire to call upon us when in Chicago, will please bear in mind our new place—56 Fifth Avenue.

Convention Notices.

NEW YORK.—The next meeting of the Allegany County Bee-Keepers' Association will be held at Belmont, N. Y., on May 4th, 1893, in the Hotel|Belmont. All bee-keepers are invited to attend and make it what it should be—an interesting meeting.

H. C. FARNUM, Pres., Transit Bridge, N. Y.

TEXAS.—The Texas State Bee-Keepers' Association will hold its 15th annual convention in Greenville, one mile north of the Court House, at the apiary of Mrs. Jennie Atchley, on Wednesday and Thursday, April the 5th and 6th, 1893. One of the biggest bee-meetings ever held in the South is anticipated. Everybody is invited. No hotel bills to pay. Come one, come all, and let us have a lovely meeting, and an enjoyable time. All bee-keepers invited to bring along something to exhibit. A. H. JONES, Sec.

Golden, Texas.

Honey & Beeswax Market Quotations.

The following Quotations are for Saturday, February 4th, 1893:

CHICAGO, ILL.—There are occasional sales of best grades of comb honey, but the retailers are not yet sold out on supply laid in before the holidays. Prices are a little easier, especially on that which will not grade "fancy"—such brings 17@18c., and other grades 12@16c. Extracted, 6@9c., as to quality.
Beeswax—22@25c. R. A. B. & Co.

CHICAGO, ILL.—Fancy stock is very scarce, with plenty of inquiry, with good prices offered for same. It sells readily at 18c.; No. 1 comb, 16@17c. Dark sells slow. White extracted, fair supply, with good demand at 8½; dark, 6@7c. Beeswax—23@25c. J. A. L.

CINCINNATI, OHIO.—Demand from manufacturers, for extracted honey, was slow for the last few weeks, while there was, and is still, a fair demand from consumers for family use. There is no choice comb honey in the market. Best white comb brings 14@16c. Extracted honey brings 6@8c.
Beeswax—Demand fair, at 23@25c. for good to choice yellow. Supply good. C. F. M. & S.

NEW YORK, N. Y.—Demand for comb honey is very light. White fancy stock is well cleaned up. The market is well stocked with off grades and buckwheat, and prices are irregular. Extracted is in good demand and stocks are light. We quote: Basswood and white clover, 8@8½c.; buckwheat, 6@6½c.; Southern, 70@75c. per gallon.
Beeswax—25@27c. H. B. & S.

SAN FRANCISCO, CALIF.—Choice extracted is scarce at 7@7½c., and demand heavier than supply. Choice comb is not scarce at 10@12c., according to quality. 1-lbs. Beeswax is neglected at 22@23c. S., L. & S.

BOSTON, MASS.—Comb honey is selling slow, very much slower than we like to have it, and it is our experience that when we start honey in at a high price, it sells hard right through the season. We quote our market nominally at 17@18c. for best white honey, 1-lb. combs. Extracted, 8@9c.
Beeswax—None on hand. B. & R.

KANSAS CITY, MO.—Demand good, supply very light. White 1-lbs., 16c. Extracted, 6@7c. No beeswax on the market. H. & B.

MINNEAPOLIS, MINN.—The market is good. We quote: Fancy white clover 1-lbs. sell fast at 18c.; 2-lbs. 16@17c. Buckwheat, comb, 13@14c. Extracted, in barrels, 7@8c.; in 5 or 10 lb. kegs., 9@10c. J. A. S. & C.

KANSAS CITY, MO.—Receipts and stocks very light, demand good. We quote: No. 1 white 1-lbs. 16@17c.; No. 2, 14@15c.; No. 1 amber 1-lbs. 15c.; No. 2 amber, 10@12c. Extracted, white, 7@7½c.; amber, 5@6.
Beeswax—20@23c. C.-M. C. C.

ALBANY, N. Y.—Our honey market is slow on account of cold weather, but our stock was never so light as now. We have less than 50 cases of honey on hand, and only one barrel of extracted; when usually we have 1,000 cases in stock. For honey not granulated in comb, we quote: White (small), 15@18c.; mixed 13@14c.; dark, 10@11c. Large comb and double glass sell for 1 to 2c. less per lb. Extracted, white, 8½@9c.; amber, 7½@8c.; buckwheat, 7@7½c. H. R. W.

List of Honey and Beeswax Dealers,

Most of whom Quote in this Journal.

Chicago, Ills.

R. A. BURNETT & Co., 161 South Water Street.
J. A. LAMON, 44 & 46 South Water Street

New York, N. Y.

F. I. SAGE & SON, 183 Reade Street.
HILDRETH BROS. & SEGELKEN, 28 & 30 West Broadway.

San Francisco, Calif.

SCHACHT, LEMCKE & STEINER, 10 Drumm St.

Minneapolis, Minn.

J. A. SHEA & CO., 14 & 16 Hennepin Avenue

Kansas City, Mo.

HAMBLIN & BEARSS, 514 Walnut Street.
CLEMONS-MASON COM. CO., 521 Walnut St.

Albany, N. Y.

H. R. WRIGHT, 326 & 328 Broadway

Hamilton, Ills.

CHAS. DADANT & SON.

Cincinnati, Ohio.

C. F. MUTH & SON, cor. Freeman & Central avs.

Doolittle's Queen-Rearing book should be in the library of every bee-keeper; and in the way we offer to to give it, there is no reason now why every one may not possess a copy of it. Send us one new subscriber for a year, and we will mail the book to you bound in paper, as a present.

Please Don't send to us for bee-keepers' supplies. We do not deal in them. If in need of anything for the apiary *except a good bee paper or book*, just send for the catalogues of some of our advertisers. They will be glad to fit you out, and do it well.

Wants or Exchanges.

Under this heading, Notices of 5 lines, or less, will be inserted at **10 cents per line**, for each insertion, when specially ordered into this Department. If over 5 lines, the additional lines will cost 20 cents each.

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